

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of	)	
	)	
Restoring Internet Freedom	)	WC Docket No. 17-108
	)	
	)	

COMMENTS OF  
SHAPEWAYS, INC.

Michael Weinberg  
Shapeways  
419 Park Ave South  
Suite 900  
New York, NY 10016

July 17, 2017

## Table of Contents

Argument.....	1
Shapeways Uses the Open Internet to Connect the World to 3D Printing.....	1
Shapeways Has Always Relied on an Open Internet to Survive .....	2
The Commission is Unnecessarily Undermining an Open Internet .....	4
The Commission is Best Positioned to Protect the Open Internet.....	5
Conclusion .....	6

## Argument

Shapeways urges the Commission to maintain the robust, flexible, and firmly-grounded open internet rules currently in place. These rules provide a clear basis to protect the open internet that is critical to Shapeways and the entire Shapeways community. The rules in place today are the result of a more than decade-long evolutionary process to develop clear rules grounded in firm legal authority to protect an open internet. Having arrived at this place of certainty, it would be unwise and counterproductive for the Commission to walk away from the rules and throw the open internet into question.

Rejecting the current open internet rules would open the door to a two-tiered internet governed by the preferences of a handful of large ISPs. This would undermine the preferences of users and erect barriers to new online services.

The Commission should continue to enforce strong open internet rules grounded in its Title II authority. These rules must include bright line prohibitions against blocking, throttling, and paid prioritization for all internet users, regardless of the technology they use to connect to the internet. The Commission must also rededicate itself to vigilance against discrimination as it may evolve in the future.

### **Shapeways Uses the Open Internet to Connect the World to 3D Printing**

Shapeways is an online platform that makes 3D printing accessible to anyone with an internet connection. Users are able to upload a digital file to Shapeways, select from one of over fifty materials – including nylon, steel, gold, and porcelain – and have that file printed into a physical object at a Shapeways factory.

Shapeways was founded in the Netherlands in 2007. While Shapeways continues to maintain facilities in the Netherlands, Shapeways moved its headquarters to Manhattan, New York in 2010. Shapeways also maintains offices in Seattle, Washington and a factory in Queens, New York.

In addition to printing their creations for themselves, users are also able to open Shapeways shops where they make their creations available to the public. Since each object is printed on demand as it is ordered by the end customer, Shapeways shop owners are able to test the market for new pieces of jewelry, housewares, games, and more without having to take on the expense of inventory or the risk that that an object will not sell as well as expected. These

features allow a single individual using freely available 3D design software to open a small business serving customers in over 140 different countries for no upfront cost.

The Shapeways community is over 625,000 members strong. Shapeways shop owners maintain over 40,000 shops in the Shapeways marketplace. Over 150,000 unique designs are uploaded to the Shapeways platform every month and well over 120,000 products are printed and shipped in the same time. Every one of those community members and uploaded models relies on an open internet to connect to Shapeways. As a result, Shapeways relies on an open internet to exist.

## **Shapeways Has Always Relied on an Open Internet to Survive**

The idea of using the internet and digital manufacturing to connect to the world with physical objects was novel when Shapeways was founded in 2007. Few people had heard of 3D printing at the time, and it is unlikely that any Internet Service Provider (ISP) would be interested in taking a meeting with a small startup building a business on a largely unknown and unproven technology. Even if Shapeways was able to obtain a meeting during those early days, as a small startup it would have lacked the capacity to buy its way into any paid priority tier available.

Fortunately, even at its founding, Shapeways was protected by a version of the Commission's open internet rules. While these rules have evolved in the intervening years, a version of the open internet rules – or a pending version of the open internet rules – have served to protect the ability of Shapeways and the Shapeways community to connect without interference from intermediary ISPs throughout its history.

The Commission's 2005 internet policy statement<sup>1</sup> made it clear that the Commission supported clear rules that prohibited ISP discrimination based on content, application, or devices. This policy statement served as a warning against ISPs who might want to erect barriers or tolls against a company such as Shapeways.

Although open internet rules as embodied in the internet policy statement were being challenged beginning in 2008, the internet policy statement made it clear to startups such as Shapeways that the Commission was committed to protecting an open internet.

---

<sup>1</sup> *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities; Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services; Computer III Further Remand Proceedings; Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review-Review of Computer III and ONA Safeguards and Requirements; Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185, CC Docket Nos. 02-33, 01-33, 98-10, 95-20, CS Docket No. 02-52, Policy Statement, 20 FCC Rcd 14986 (2005) (*Internet Policy Statement*).

This commitment manifested itself in the 2009 Notice of Proposed Rulemaking on this topic. As the Commission made clear in the document's introduction: "With today's Notice, we seek public input on draft rules to preserve an open Internet – the next step in an ongoing and longstanding effort at the Commission."<sup>2</sup> It went on: "Throughout this extensive process, one point has attracted nearly unanimous support: The Internet's openness, and the transparency of its protocols, have been critical to its success."<sup>3</sup>

These types of statements from the Commission made it clear to technology startups such as Shapeways that, regardless of the specific legal mechanism relied upon, the Commission stood behind the open internet. At the end of the 2009 process the Commission once again affirmed its commitment to an open internet. The Report and Order began: "Today the Commission takes an important step to preserve the Internet as an open platform for innovation, investment, job creation, economic growth, competition, and free expression."<sup>4</sup>

The DC Circuit ultimately overturned that version of the Commission's rules because of deficiencies in the authority the Commission relied upon to implement them.<sup>5</sup> However, in doing so, the court made it clear that the Commission's concerns about an open internet were legitimate, as were the types of rules the Commission had proposed to protect it.<sup>6</sup>

Following the ruling, the Commission's commitment to protecting the open internet was quickly reaffirmed when it established a new docket to consider the way forward to protect an open internet.<sup>7</sup> The Commission's NPRM posed a question that reaffirmed the Commission's critical role in protecting an open internet: "What is the right public policy to ensure the Internet remains open?"<sup>8</sup>

Once again, while the specifics of implementation were being debated, companies such as Shapeways had reason to understand that the Commission was working towards protecting an

---

<sup>2</sup> *Preserving the Open Internet et al.*, Notice of Proposed Rulemaking, 24 FCC Rcd 13064, para. 2 (2009).

<sup>3</sup> *Id.* at 3.

<sup>4</sup> *Id.* at 1.

<sup>5</sup> See *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014).

<sup>6</sup> See *id.* at 644-46 ("To begin with, the Commission has more than adequately supported and explained its conclusion that edge-provider innovation leads to the expansion and improvement of broadband infrastructure. . . . The Commission's finding that Internet openness fosters the edge-provider innovation that drives this 'virtuous cycle' was likewise reasonable and grounded in substantial evidence. . . . Equally important, the Commission has adequately supported and explained its conclusion that, absent rules such as those set forth in the *Open Internet Order*, broadband providers represent a threat to Internet openness and could act in ways that would ultimately inhibit the speed and extent of future broadband deployment.")

<sup>7</sup> See *New Docket Established to Address Open Internet Remand*, GN Docket No. 14-28, Public Notice, 29 FCC Rcd 1746 (Wireline Comp. Bur. 2014).

<sup>8</sup> *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Notice of Proposed Rulemaking, 29 FCC Rcd 5561 at para. 2 (2014).

open internet. ISPs who might act to undermine the open internet were receiving an identical signal.

This understanding was confirmed by the Report and Order issued by the Commission in 2015. Declaring that the internet “must remain open,”<sup>9</sup> the Commission established clear rules that prohibited discrimination as it was then understood and allowed the Commission to adapt to new types of discrimination that might emerge. Furthermore, unlike previous attempts by the Commission to protect the open internet, the Commission reclassified ISPs as common carriers and grounded the new rules in Title II authority.

Although these rules were also challenged by ISPs, they were ultimately affirmed by the DC Circuit. At that point Shapeways was able to rely on the Commission’s intent to protect an open internet, rules to support that goal, and affirmation by the courts that the rules themselves were implemented in a legally enforceable manner.

### **The Commission’s Current Inquiry Undermines an Open Internet**

Given that confluence of events, Shapeways is puzzled by this most recent proceeding. For the first time, the Commission appears to be opening an open internet proceeding with the intent of weakening, instead of strengthening, the open internet. This radical change undermines Shapeways’ ability to continue to grow and develop innovative services for its community.

A decision by the Commission to empower ISPs to discriminate against Shapeways will fundamentally alter Shapeways’ ability to continue to grow and innovate. Shapeways will have to develop expertise and dedicate resources to navigating the thicket of discriminatory tiers offered by ISPs. Shapeways will be forced to consider optimizing for the discriminatory patterns of some ISPs at the cost of exposing itself to increased discrimination by others. Shapeways may also be forced to abandon effective access to smaller regional ISPs where the costs of seeking and negotiating agreements – let alone paying for access to adequate connectivity – is prohibitively expensive.

Commission-sanctioned discrimination by ISPs could also impact the ability of Shapeways to attract additional investment. In addition to questions about the Shapeways business model and 3D printing in general, potential investors would evaluate Shapeways on its relationship to ISPs and Shapeways’ ability to obtain necessary priority access to a critical mass of ISP customers. These explorations would necessarily discount the viability of Shapeways’ key service in favor of Shapeways’ ability to build relationships with ISPs.

---

<sup>9</sup> *Protecting and Promoting the Open Internet*, WC Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601 at para. 1 (2015).

Furthermore, investors would rightly demand assurances that no major ISPs were planning on offering a service that competes with Shapeways. With critical control over their customers' connection to the internet, even a weak offering backed by an ISP could pose a threat to Shapeways' viability. Shapeways welcomes competition on the merits of its 3D printing offering. The Commission should not force Shapeways to compete in the 3D printing industry on the strength of its residential ISP offering.

This impact of allowing ISPs to discriminate online is not unique to Shapeways or the internet-powered 3D printing industry. The Commission is right to engage in an analysis of the costs and benefits of the current Title II classification and open internet rules.<sup>10</sup> Since the courts have made it clear that Title II classification is the bedrock of effective open internet rules, the Commission would rightly attribute the benefits of the open internet to the current Title II classification. That benefit would include Shapeways, as well as all of the other services that have grown up on and rely upon the open internet.

### **The Commission is Best Positioned to Protect the Open Internet**

The current internet conduct standard is an effective approach to the constantly-evolving nature of the open internet. The key threat to the open internet is clear: ISPs discriminating against edge services such as Shapeways. However, the specific manifestation of that threat is constantly evolving. The internet conduct standard establishes a clear prohibition against discrimination. At the same time, it avoids establishing technology- and behavior-specific rules that could easily be gamed or become obsolete over time. Diminishing the existing rule – or abandoning it all together<sup>11</sup> – would effectively invite ISPs to discriminate.

Similarly, Shapeways believes that the Commission is best positioned to enforce the rules and protect an open internet. Shifting the burden of enforcement to individual edge providers creates an incentive for ISPs to constantly push the limits of what is allowed under the rules. Smaller companies are most likely to be damaged by initial reductions in internet openness because they are less able to negotiate with ISPs, less able to engineer around restrictions, and less likely to be conscientiously avoided by ISPs attempting to test the limits of the rules. These small companies are also the least able to afford legal counsel to bring a complaint, or to be able to wait the months or years that could pass before the complaint is resolved.

---

<sup>10</sup> See *In the Matter of Restoring Internet Freedom*, Notice of Proposed Rulemaking, WC Docket No. 17-108 at para. 105 (2017).

<sup>11</sup> See *id.* at para. 75.

The effect of this dynamic would be to enable ISPs to slowly undermine the open internet. In contrast, the Commission is well positioned to identify threats to an open internet and houses the expertise required to bring an enforcement action.

## Conclusion

The open internet rules were key to the development of Shapeways and continue to be critical to Shapeways' growth. The tens of thousands of small businesses that rely on Shapeways rely on an open internet to survive.

The Commission has crafted clear, robust rules to protect an open internet. These rules and their underlying authority have been validated by courts. Shapeways hopes that the Commission does not walk away from that achievement in an attempt to make it easier for ISPs to discriminate online.

Shapeways urges the Commission to protect the open internet by maintaining the existing rules and the authority that underpins them.

Respectfully Submitted,

Shapeways, Inc.

By:

\_\_\_\_\_/s/\_\_\_\_

Michael Weinberg

Shapeways, Inc.

419 Park Ave. South

Suite 900

New York, NY 10016

mweinberg@shapeways.com